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SOVIET SEEDERS AND CULTIVATORS FOR RUBBER PLANTATIONS

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SEEDERS

The successful growing of rubber-bearing plants depends on proper seeding, nursing, and harvesting operations. These are best performed with the aid of machinery. In the past 2 years, many labor-saving machines have been tested, and the following have been found satisfactory:

SK-M4 Horse-drawn Combination Seeder

The SK-M4 was developed by the VISKhOM (All-Union Institute of Agricultural-Machine Building) and the SKB (Special Design Bureau) of the Kirovograd Krasnaya Zvezda Plant. It is designed to sow kok-sagyz in mineral soils by the nest or wide-strip method and to deposit fertilizer simultaneously.

The fertilizing mechanism is an adaptation of that on the SK-10 seeder. The seed box is made of steel and has two shafts inside; one carries the stirrers, and the other, the pressure mechanisms and the worm conveyers.

The colters, which make slight furrows in the soil each have two welded flanges, between which revolve the seed rollers. A four-blade roller is used to seed nests 300 millimeters apart and a five-blade one for nests 250 millimeters apart. In front of the rollers there are little visors to guide the seed or fertilizer; for wide-strip sowing, the rollers and guiding visors are removed. Weights are mounted on the frame to regulate the thickness of the soil which is to cover the seeds.

The SK-M4 seeder was tested in 1950 by the Central Black-Soil MIS (Machine Experimental Station) for spring sowing of kok-sagyz. It was found to have a seed-distribution regularity of 98.2 percent in planting nests up to 6 centimeters wide and 92.4 percent for nests up to 8 centimeters long. The average planting

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depth was 16-20 millimeters. The machine's productivity was 0.7 hectare per hour. Its technical indexes were superior to those of other machines with similar seeding apparatus. It has been recommended for series production.

SKS-12E Tractor-drawn Combination Seeder

The SKS-12E seeder, designed by VISKhOM and the SKB of the Krasnaya Zvezda Plant, is intended for nest and wide-strip sowing of kok-sagyz in mineral soils. It is based on the 2SK-16 universal combination seeder, with some adaptation. Its apparatus for seeding nests is the same as in the SKS-12E machine. It has shown satisfactory performance in tests and has been recommended for series production.

SZKS-4 Horse-drawn Seeder

The SZKS-4 seeder, designed by the Belorussian Institute for the Mechanization of Agriculture, is intended for nest and wide-strip sowing of kok-sagyz on peat soils. It is based on the SOD-10 grain and vegetable seeder but has a special type of colters and nest-forming mechanism.

The colter is a welded mechanism consisting of a wedge, cotter, and support. The wedge cuts into the soil, forming a furrow 10 centimeters wide. The cotter limits the depth to which the wedge may penetrate.

The nest-making apparatus is an iron box with a hopper fastened to its upper flange. Two seed pipes are located in the hopper. Two valves inside the box sow the seeds in portions (nests). The valves are powered from the right wheel of the seeder by a special gear transmission, which produces a reciprocating motion in the valves by means of a cam and crank mechanism.

The first series of such machines was tested in kolkhozes of the Belorussian SSR. The machines proved satisfactory and have been recommended for series production.

STS-4 Tau-sagyz Seeder

The STS-4 seeder is based on the SSK tractor-drawn cotton seeder and is intended for row planting of tau-sagyz seeds from which the fluff has been removed It is designed to work in combination with a U-1 or U-2 tractor.

The seeder weighs 641 kilograms. Its productivity is 0.8-0.9 hectare per hour. It was tested in 1949 by the State Central-Asia Machine Experimental Station and during the current year will be tested by the GSKB (State Special Design Bureau) in collaboration with the Uzbeksel'mash Plant.

SG-3 Seeder for Guayule Nurseries

The SG-3 seeder sows guayule rubber seeds in nurseries in strips 45 centimeters apart and little rows 15 centimeters apart. Simultaneously, it cuts furrows between strips for watering.

The machine was tested in 1949 in the guayule-growing kolkhozes of the Azerbaydzhan SSR and showed satisfactory performance. The Transcaucasian MIS recommended the seeder for series production. In the spring of 1950, an improved model of the seeder was tested, after which is was recommended for use in the guayule nurseries.

BETWEEN-ROW CULTIVATION AND SUPPLEMENTARY NOURISHMENT OF PLANTS

The machines hitherto produced for tilling between rows have suffered from certain shortcomings. However, a number of new types of cultivators were tested in 1950 and showed themselves adaptable to the cultivation of kok-sagyz, among them the KRS-5.4 trailer cultivator and the KN-5.4 suspension cultivator.

KRS-5.4 Tractor-drawn Cultivator

This machine, designed by F. M. Solov'yev, consists of two sections joined together by hinges. When coupled with the U-2 tractor, it can till between rows a full 12-row span of 445 centimeters to a depth of 8 centimeters.

In deep tilling, each half of the cultivator may be used as a separate machine if a powerful tractor is not available.

KN-5.4 Suspension-type Cultivator

This machine is designed for between-row tilling of fields which have been sown by 12-row seeders. It works in combination with the U-2 tractor. It is equipped with 12 hinged sections and tills to a depth of 8 centimeters at full span. Each section has a hinged supporting wheel which permits the working parts to adapt themselves to the relief of the terrain. These parts are operated behind the tractor by means of a steering mechanism.

Both the KRS-5.4 and KN-5.4 cultivators have been tested successfully at the Ukrainian and Central Black-Soil Machine Experimental Stations and recommended for series production. Attachments to these machines for the supplementary deposit of dry fertilizer are currently being designed.

KRS-1,8 Horse-drawn Cultivator-Fertilizer

The KRS-1.8, designed by F. M. Solov'yev, is intended for the supplementary deposit of dry fertilizer. It is a four-wheel cultivator whose front wheels and half axles can be moved apart permitting the machine to be regulated to a desired span. This machine has been recommended for series production for the cultivation of kok-sagyz and sugar beet.

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